

Asellote Isopods (Crustacea: Peracarida) of Sagami Bay, Central Japan

By

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下村通誉*：相模湾のミズムシ亜目等脚類（甲殻綱：フクロエビ上目）

Abstract: Seven species of asellote isopods including a new species are reported from Sagami Bay, central Japan. *Janiralata sagamiensis* sp. nov. is distinguished from its congeners by: the reduced rostrum; the distally rounded pleotelson without concavities; frontally well-projected lateral lappets of cephalon, with acute apex; broad short pleotelson; the robust propodus of pereopods; the broad lateral horn of male pleopod 1; slightly upward-curved tip of the lateral horns of male pleopod 1; moderately short stylet of appendix masculina; the second article of endopod of the pleopod 3 with 3 plumose setae distally. *Janiralata chuni* (Janiridae) is redescribed based on newly collected specimens. *Janiropsis tridens* (Janiridae) is recorded from Japanese waters for the first time.

Key words: Asellota, Isopoda, Crustacea, Sagami Bay, Japan

Introduction

Sagami Bay is located on the Pacific coast of central Honshu, Japan, bounded by the Miura Peninsula on the east and the northern half of the Izu Peninsula on the west. The waters of this area is known to be influenced by a warm ocean current Kuroshio and famous for quite rich marine fauna. The National Science Museum, Tokyo organized a research project "Study on Environmental Changes in the Sagami Sea and Adjacent Coastal Area with Time Serial Comparison of Fauna and Flora" during 2001 to 2005.

The marine asellote fauna of Sagami Bay has not been well studied. Only three species, *Janiralata chuni* (Thielemann, 1910), *Uromunna serricauda* Müller, 1992 and *Munna japonica* Shimomura & Mawatari, 2002, have so far been reported (Thielemann, 1910; Müller, 1992; Shimomura & Mawatari, 2002a). During the present survey, seven species of asellote isopods including a new species were collected from 15–158 m deep in Sagami Bay. This paper describes the species collected during the survey.

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Materials and Methods

Sediments samples were obtained by a biological dredge by R/V *Tachibana* (Yokohama National University) from 51.6 to 68 m depth and SCUBA from 15 to 20 m depth of Manazuru-cho, Kanagawa Prefecture, central Japan. Samples were also obtained by a gill net by fish boat *Noboru-Maru* from 93 to 158 m depth. They were washed in a plastic bucket, and the suspension decanted through a plankton net with a pore size of 0.3 mm. The specimens retained were fixed and preserved in 70% ethanol or 10% neutralized formalin solution diluted with seawater. Each individual was dissected appendages mounted on glass microslides and observed using a differential interference contrast microscope. For SEM observation (Hitachi S3000N), specimens were dehydrated through an alcohol series, freeze-dried, and sputter-coated with platinum. Total length was measured from the tip of the head to the end of the pleotelson.

Terminology follows Wilson (1989). Type series is deposited in the Showa Memorial Institute, Tsukuba Research Center, National Science Museum, Tokyo (NSMT-Cr S) and the Kitakyushu Museum of Natural History and Human History (KMNH IvR).

Taxonomy

Family Janiridae G. O. Sars, 1897

Genus *Janiralata* Menzies, 1951

Janiralata chuni (Thielemann, 1910)

(Figs. 1–3)

Iolella chuni Thielemann, 1910: pp. 72–75, figs. 82–85.

Janiralata chuni (Thielemann, 1910). Wilson & Wägele, 1994, p. 711.

Material examined. ♂, 4.35 mm (KMNH IvR 700,115), ovig. ♀, 7.75 mm (NSMT-Cr S751), on starfish *Asterias amurensis* Lutken, 35°10.82'N, 139°34.56'E–35°11.00'N, 139°34.35'E, 93–158 m depth, gill net, fishing boat *Noboru-Maru*, off Kanagawa Prefecture, Japan, 8 March 2002.

Diagnosis. Body (Fig. 1A, B) ovate and flattened. Cephalon (Fig. 1A, B) narrower than pereonite 1; frontal margin slightly convex, without setae; lateral lobes broad, frontally projected, with blunt apex; eye lobes moderately small. Pereonites (Fig. 1A, B) extended laterally; pereonites 2 and 3 laterally bilobed by deep, narrow cleft. Coxal plates 1, 5–7 (Fig. 1A, B) slightly visible in dorsal view. Pleotelson (Fig. 1A, B) about 1.4 times as broad as long, with many marginal setae. Maxilliped (Fig. 2E): third article of palp moderately long, as long as second article. Male pleopod 1 (Fig. 3A) distally expanded. Male pleopod 2 (Fig. 3B): protopod ovate. Pleopod 3 (Fig. 3C): second article of endopod with 5 plumose setae distally; first article of exopod with 3 plumose setae; second article of exopod with 8 plumose setae. Uropod (Fig. 1A, B) composed of broad protopod, flattened endopod and exopod.

Description of reference male (KMNH IvR 700,115). Body (Fig. 1A) about twice as long as maximal width. Cephalon (Fig. 1A) about 2.2 times as broad as long, with many long simple setae laterally; posterior margin slightly convex. Pereonites with many long simple setae laterally and some simple setae dorsally: pereonite 1 laterally rounded; pereonite 1 as long as pereonite 2; pereonites 6 and 7 with anterolateral rounded corners and slightly pointed posterolateral corners.

Antennula (Fig. 1C): article 1 with robust, long simple seta and 3 short broom setae medially and some short simple setae; article 2 about half as long as article 1, with 2 long and 2 short simple setae

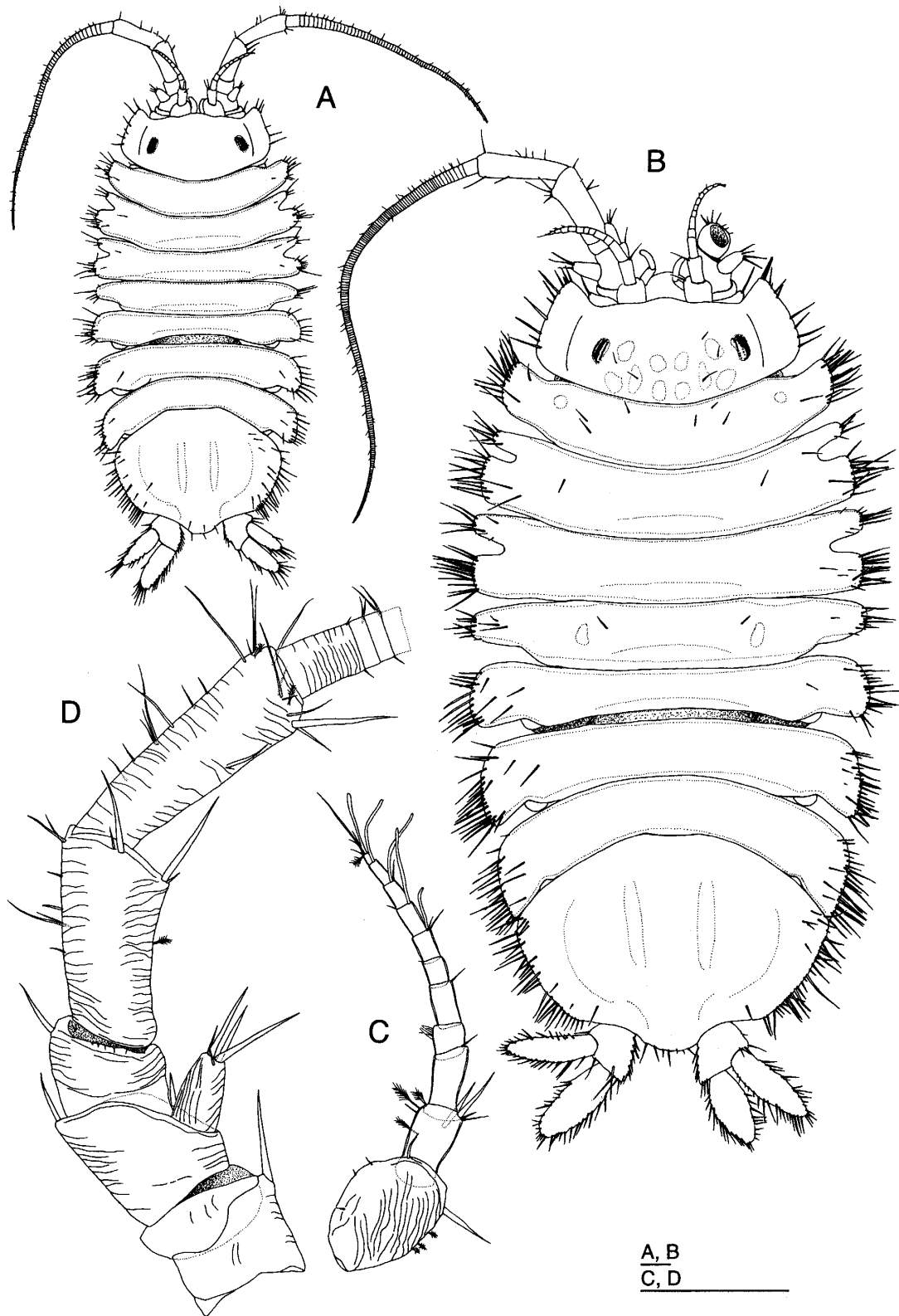


Fig. 1. *Janiralata chuni* (Thielemann, 1910). A, D, C, male (KMNH IvR 700,115); B, female (NSMT-Cr S751). A, habitus, dorsal; B, habitus, dorsal; C, right antenna 1, ventral; D, right antenna 2, dorsal. Scales=300 μ m.

distomedially and 1 simple short and 3 broom setae laterally; article 3 slightly shorter than article 2; articles 4 to 10 with some simple setae and aesthetascs; terminal article shortest, with 1 long simple, 3 short simple, 1 broom setae and 1 aesthetasc apically.

Antenna (Fig. 1D): article 1 broader than long, with long simple seta distolaterally; article 2 shorter than article 1, unarmed; article 3 trapezoidal, longer than articles 1 and 2, with 2 simple setae distally, and with antennular scale bearing 5 simple setae; article 4 shorter than article 3, with simple seta distomedially; article 5 as long as articles 3 and 4, with broom seta laterally and some simple setae distally and medially; article 6 longer than article 5, narrower than article 5, with many simple setae and 2 broom setae; first article of flagellum longest, with short setae.

Left mandible (Fig. 2A): article 1 of palp without setae; article 2 longest, about 1.7 times as long as article 1, with 2 long and 2 short setulate setae; article 3 slightly curved to inward, about half as long as article 2, having row of 16 setulate setae on ventral side; incisor with 3 cusps; lacinia mobilis with 3 teeth; spine row with 7 robust setulate setae and some long simple setae; molar process with 7 narrow setulate setae subdistally. Right mandible (Fig. 2B) similar to left mandible: article 1 with simple seta distally; article 2 with 4 setulate setae and 4 simple setae; article 3 with row of 14 setulate setae; incisor with 5 cusps; spine row with 9 setulate setae; molar process with 8 narrow setulate setae.

Maxillula (Fig. 2C): inner lobe with long robust setulate seta distomedially and many fine simple setae; outer lobe with 5 robust deinticulate setae and 4 robust simple setae distally and many fine setae laterally, medially and dorsally.

Maxilla (Fig. 2D): inner lobe with 8 setulate robust setae and 1 simple robust seta distally and medially and many fine simple setae marginally; two outer lobes each with 4 robust setulate setae apically and some simple setae medially.

Maxilliped (Fig. 2E): endite broader than palp, bearing 13 short setulate setae distally and many short fine setae distodorsally, and with few short fine setae ventrally and 2 receptaculi medially; epipod lanceolate, about 2.4 times as long as wide, slightly narrower than endite. Article 1 of palp short, with 1 mediolateral and 1 distolateral robust setae; article 2 trapezoidal, broadest, about twice as long as article 1, with many simple setae medially and laterally; article 3 trapezoidal, with many simple setae medially and laterally; article 4 narrow, as long as article 3, with many simple setae; article 5 narrowest, with 2 robust simple setae and many fine setae.

Pereopod 1 (Fig. 2F): basis about 2.2 times as long as broad, with 1 robust simple seta dorsally and 4 fine simple setae ventrally; ischium narrower than basis, as long as basis, with 3 simple and 2 ventral simple setae; merus subtriangulate, with 2 robust simple setae distodorsally and some simple setae laterally and ventrally; carpus ovate, about 1.4 times as long as basis, about 2.2 times as long as broad, with 6 robust sensory setae and many simple setae and teeth-like fringe ventrally and some simple setae dorsally and medially; propodus slender, shorter than carpus, with 1 robust sensory seta and some fine short setae and short fringe ventrally and some simple setae dorsally and medially; dactylus narrowest, with 7 short simple setae and 2 curved ungues.

Pereopod 2 (Fig. 3E) as long as pereopod 1: basis widest, with 5 simple setae and 1 broom seta dorsally and 5 simple setae ventrally; ischium shorter than basis, with 7 dorsal and 5 ventral simple setae; merus subtriangulate, with 4 long robust simple setae dorsally and 7 fine simple setae ventrally and laterally; carpus as long as basis, about 3.7 times as long as wide, with 3 simple setae and 1 broom seta dorsally, with 1 robust sensory seta, 5 simple setae and many fine short setae ventrally;

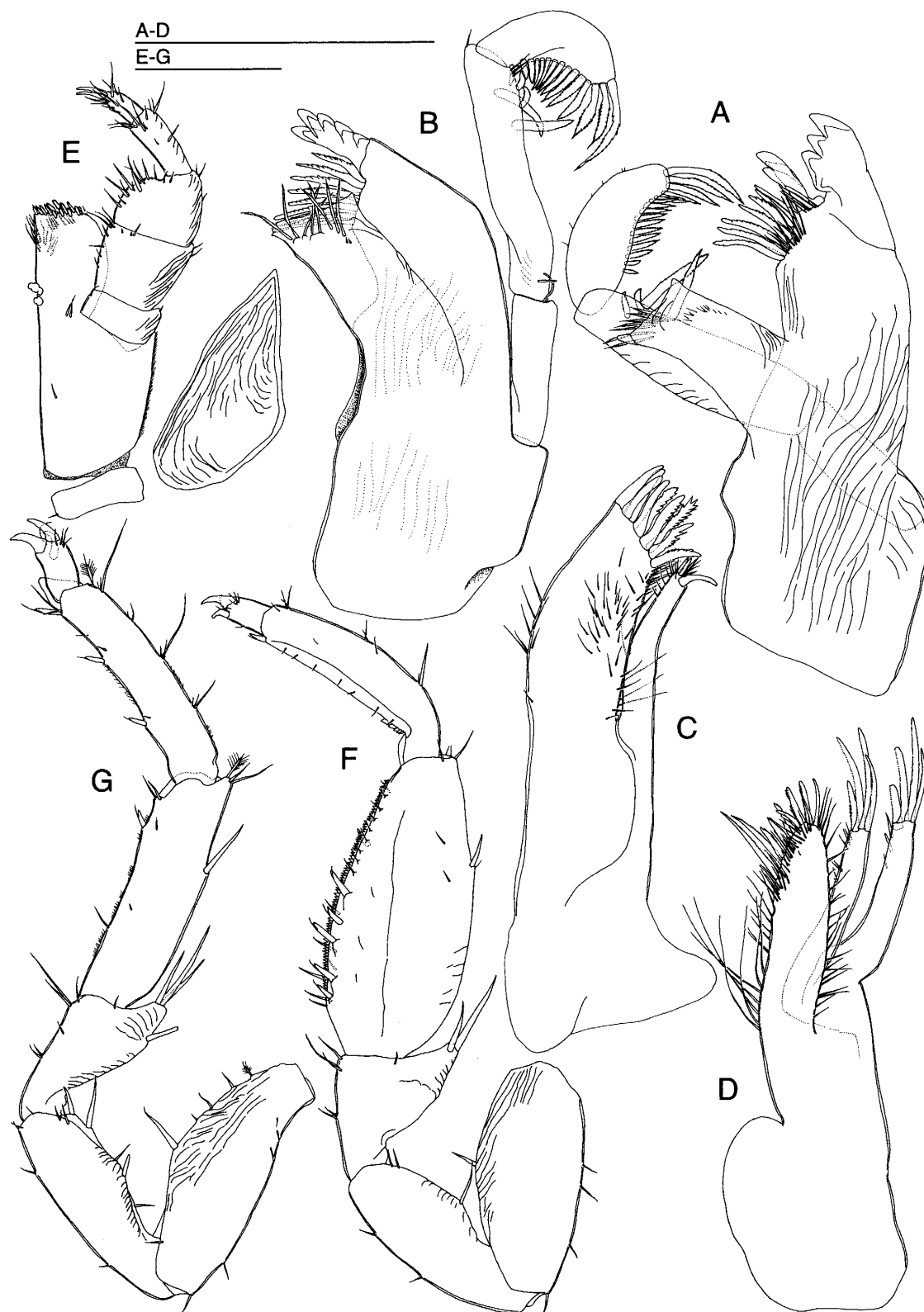


Fig. 2. *Janiralata chuni* (Thielemann, 1910), male (KMNH IvR 700,115). A, left mandible, ventral; B, right mandible, dorsal; C, left maxilla 1, dorsal; D, right maxilla 2, dorsal; E, left maxilliped, ventral; F, right pereopod 1, medial; G, right pereopod 2, medial. Scales=300 μ m.

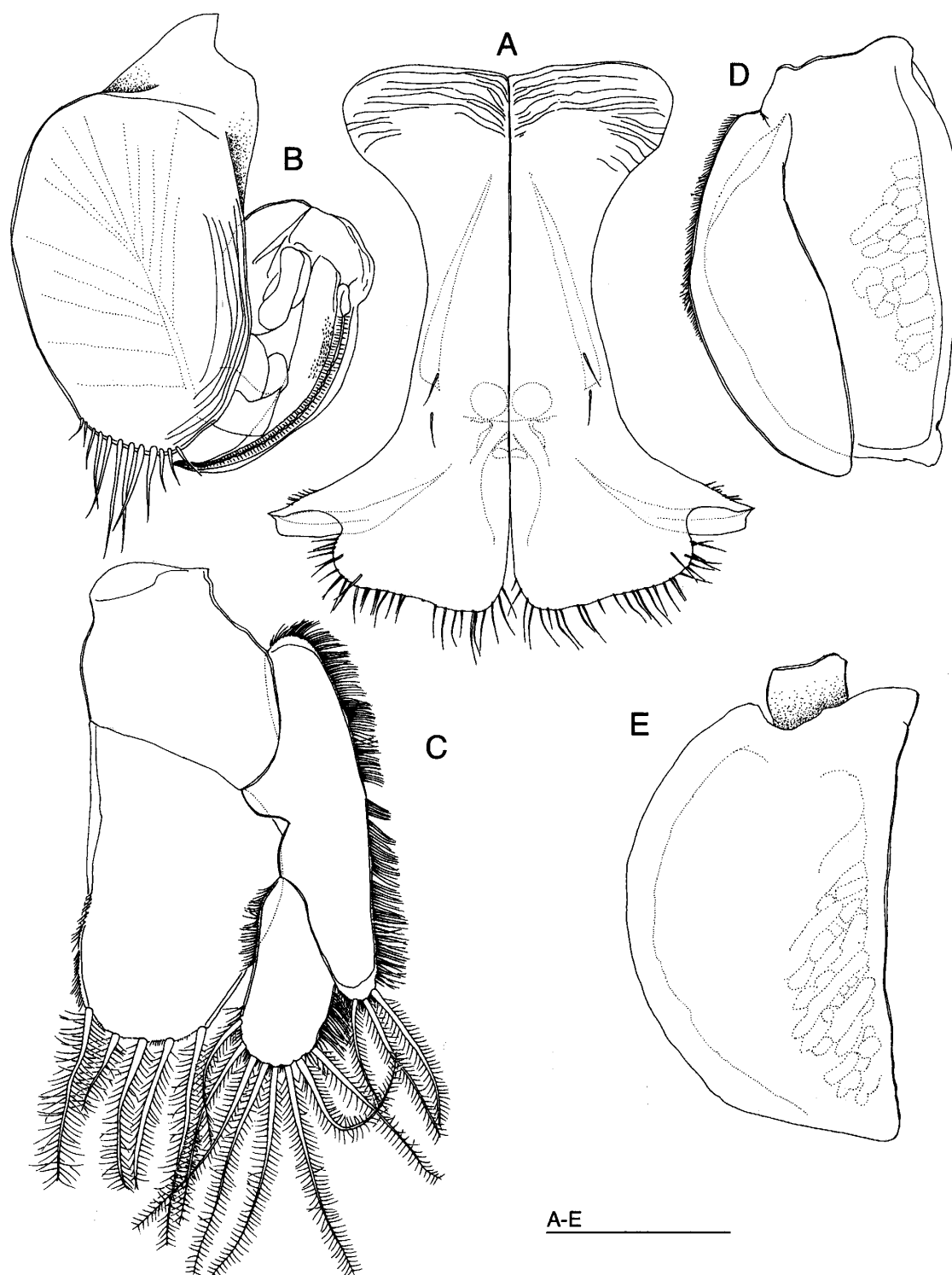


Fig. 3. *Janiralata chuni* (Thielemann, 1910), male (KMNH IvR 700,115). A, pleopod 1, ventral; B, right pleopod 2, ventral; C, right pleopod 3, dorsal; D, right pleopod 4, ventral; E, right pleopod 5, ventral. Scale=300 μ m.

propodus as long as carpus, narrower than carpus, with 3 long fine, many short simple setae and broom seta, with 3 robust sensory setae, 5 short simple setae and many short fine setae ventrally; dactylus with 5 simple setae and 3 curved unguis.

Pleopod 1 (Fig. 3A) about 1.1 times as long as maximal width, denticulated proximoventrally, with 60 long simple setae distally, 14 short simple setae distolaterally and 4 long simple setae ventrally. Pleopod 2 (Fig. 3B) with robust short appendix masculina: protopod about 1.6 times as long as wide, with 12 simple setae distally. Pleopod 3 (Fig. 3C): endopod about 2.4 times as long as maximal width; exopod slender, surpassing tip of endopod; article 1 of exopod about 1.9 times as long as article 1 of endopod; article 2 of exopod about half as long as article 1 of exopod. Pleopod 4 (Fig. 3D): endopod broad, about 1.7 times as long as wide; exopod about half as broad as endopod, with many fine setae on lateral margin. Pleopod 5 (Fig. 3E) semicircular, about 1.8 times as long as wide.

Uropod (Fig. 1A) marginally setose: endopod and exopod subequal in length.

Description of reference female (NSMT-Cr S751). Similar to female in pereonal appendages. Body (Fig. 1B) about 1.9 times as long as maximal width. Pereonites (Fig. 1B) with many long simple setae laterally and some simple setae dorsally: pereonite 1 laterally rounded; pereonite 1 slightly shorter than pereonite 2

Remarks. The present specimens were identified with *Janiralata chuni* (Thielemann, 1910) by the following characters: 1) the frontal margin of cephalon is slightly convex; 2) the lateral tergal lappets are broadened; 3) the third article of maxillipedal palp is moderately long, as long as the second article; 4) male pleopod 1 is distally expanded; 5) the protopod of male pleopod 2 is ovate. The species were originally described based on the specimens collected from Sagami Bay (Thielemann, 1910). This is the first record of the species since its original description.

Janiralata chuni is similar to *J. davis* Menzies, 1951, known from California, in having the absent of rostrum, the broadened lateral tergal lappets and the broad pleotelson (Menzies, 1951). The two species, however, differ from one another in the following characters (those of *J. davis* in parentheses): frontal margin of the cephalon is protruded slightly (moderately strong); the second article of antennula is about 1.9 times as long as wide (as long as wide); the second article of mandibular palp is about twice as long as article 1 (slightly longer than article 1); the third article of maxillipedal palp is as long as the second article (shorter than article 2); male pleopod 1 is distally expanded (not expanded); the protopod of male pleopod 2 is ovate (subrectangular); the second article of endopod of the pleopod 3 has 5 plumose setae distally (3 plumose setae).

Janiralata sagamiensis sp. nov.

(Figs. 4–9)

Material examined. Holotype: ♂, 2.22 mm (NSMT-Cr S16), 35°9.669'N, 139°8.889'E, 15 m depth, sponge, SCUBA, off Iwa, Manazuru-cho, Kanagawa Prefecture, Japan, 24 August 2004. Allotype: ovig. ♀, 3.36 mm (KMNH IvR 700,116), data same as holotype. Paratypes: ♂, 1.8 mm (KMNH IvR 700,117), 6 ovig. ♀, 2.95 mm (KMNH IvR 700,119), 2.84 mm (KMNH IvR 700,120), 2.82 mm (NSMT-Cr S17), 2.66 mm (NSMT-Cr S018), 2.41 mm (KMNH IvR 700,121), 2.3 mm (NSMT-Cr S19), 6 non-ovig. ♀, 2.84 mm (KMNH IvR 700,122), 2.77 mm (NSMT-Cr S20), 2.77 mm (NSMT-Cr S21), 2 mm (NSMT-Cr S22), 1.68 mm (NSMT-Cr S23), 1.48 mm (NSMT-Cr S24), data same as holotype.

Diagnosis. Body (Fig. 4A, B) moderately narrow; color of pigments dark brown. Cephalon (Fig. 4A, B)

slightly narrower than pereonite 1; frontal margin slightly convex, without setae; lateral lobes narrow, frontally projected, with acute apex; eye lobes large. Pereonites (Fig. 4A, B): pereonites 2 and 3 laterally bilobed by broad cleft. All coxal plates (Fig. 4A, B) visible in dorsal view. Pleotelson (Fig. 4A, B) about 1.4 times as broad as long, with some long marginal setae. Male pleopod 1 (Fig. 5F) distally not expanded, with pair of protrusions distomedially. Male pleopod 2 (Fig. 6A): protopod subrectangular. Pleopod 3 (Fig. 6B): second article of endopod with 3 plumose setae distally; first article of exopod without plumose setae; second article of exopod with 4 simple setae medially and many fine setae laterally. Uropod (Fig. 4A, B) composed of narrow protopod, endopod and exopod.

Description of holotypic male (NSMT-Cr S16). Cephalon (Fig. 4A) with pair of long simple setae laterally and few simple setae dorsally; posterior margin slightly convex. Pereonites (Fig. 4A) with some simple setae laterally and dorsally; pereonite 1 unilobed laterally, longer than pereonite 2.

Antennula (Fig. 4C): article 1 robust, with long robust sensory seta and 7 broom setae medially and some short simple setae; article 2 about half as long as article 1, with 5 long robust sensory setae and 2 broom setae and some short simple setae distally and laterally; article 3 shorter than article 2, with 4 simple setae distally; articles 4 to 12 with some simple setae and aesthetascs distally.

Antenna (Fig. 4D): article 2 broader than long, with long simple seta laterally; article 3 trapezoidal, with 2 simple setae distomedially, and with antennular scale bearing 5 apical simple setae; article 4 shorter than article 2, with 5 simple setae distomedially.

Left mandible (Fig. 4E): article 1 of palp without setae; article 2 with 2 long setulate setae distally; article 3 about as long as article 1, having row of many robust setae and many fine setae on ventral side; incisor with 3 cusps; lacinia mobilis with 4 teeth; spine row with 6 robust setulate setae. Right mandible (Fig. 4F) similar to left mandible: article 1 with simple seta distally; article 2 with 4 robust setae distally; article 3 with row of 18 robust setae and many fine setae; incisor with 5 cusps; spine row with 10 setulate setae; molar process with 5 robust setae subdistally.

Maxillula (Fig. 5A): inner lobe with 2 long robust setulate setae distomedially and many fine simple setae laterally; outer lobe with 8 robust deinticulate setae and 1 robust simple seta distally and many fine setae laterally and medially.

Maxilla (Fig. 5B): inner lobe with some setulate robust setae and many simple setae distally and medially; two outer lobes each with 4 robust setae apically and many simple setae medially.

Maxilliped (Fig. 5C): endite broader than palp, bearing 7 short setulate setae distally and many short fine setae dorsally and 3 receptaculi medially; epipod lanceolate, about 2.4 times as long as wide, narrower than endite. Article 1 of palp moderately long, with 1 distomedial, 1 distoventral and 1 distolateral simple setae; article 2 trapezoidal, broadest, longer than article 1, with 6 medial, 3 distoventral and 1 distolateral simple setae; article 3 trapezoidal, with 14 medial and 3 lateral simple setae; article 4 narrow, slightly longer than article 3, with many long simple setae; article 5 narrowest, with many simple setae apically.

Pereopod 1 (Fig. 5D): basis about 2.4 times as long as broad, with 1 robust simple seta and 1 fine simple seta dorsally and 4 fine simple setae ventrally; ischium narrower than basis, shorter than basis, with 3 robust sensory setae and 5 simple setae dorsally and 4 simple setae ventrally; merus trapezoidal, with 3 robust sensory setae dorsally and 6 simple setae ventrally; carpus ovate, about 1.2 times as long as basis, about 2.5 times as long as broad, with 19 robust sensory setae and some simple setae ventrally, and with 3 robust sensory setae and 3 simple setae dorsally; propodus moderately robust, with 2 robust sensory setae and 1 simple seta distoventrally and 4 short simple setae ventrally,

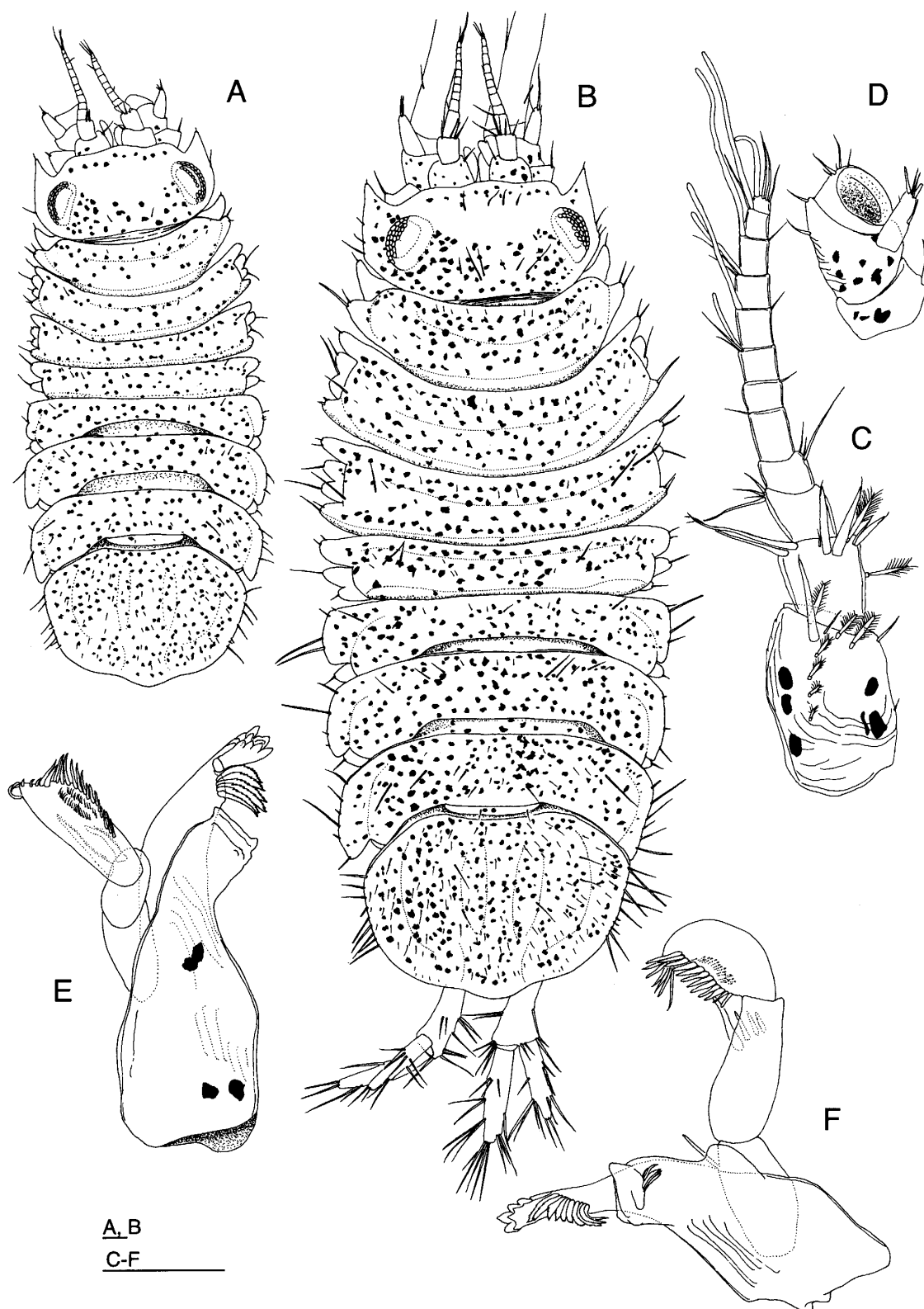


Fig. 4. *Janiralata sagamiensis* sp. nov. A, C-F, holotype male (NSMT-Cr S16); B, allotype female (KMNH IvR 700,118). A, habitus, dorsal; B, habitus, dorsal; C, right antenna 1, dorsal; D, articles 2-4 of right antenna 2, dorsal; left mandible, medial; right mandible, medial. Scales=100 μ m.



Fig. 5. *Janiralata sagamiensis* sp. nov., holotype male (NSMT-Cr S16). A, left maxilla 1, ventral; B, left maxilla 2, ventral; C, left maxilliped, ventral; D, left pereopod 1, medial; E, right pereopod 5, lateral; F, pleopod 1, ventral. Scale=100 μ m.

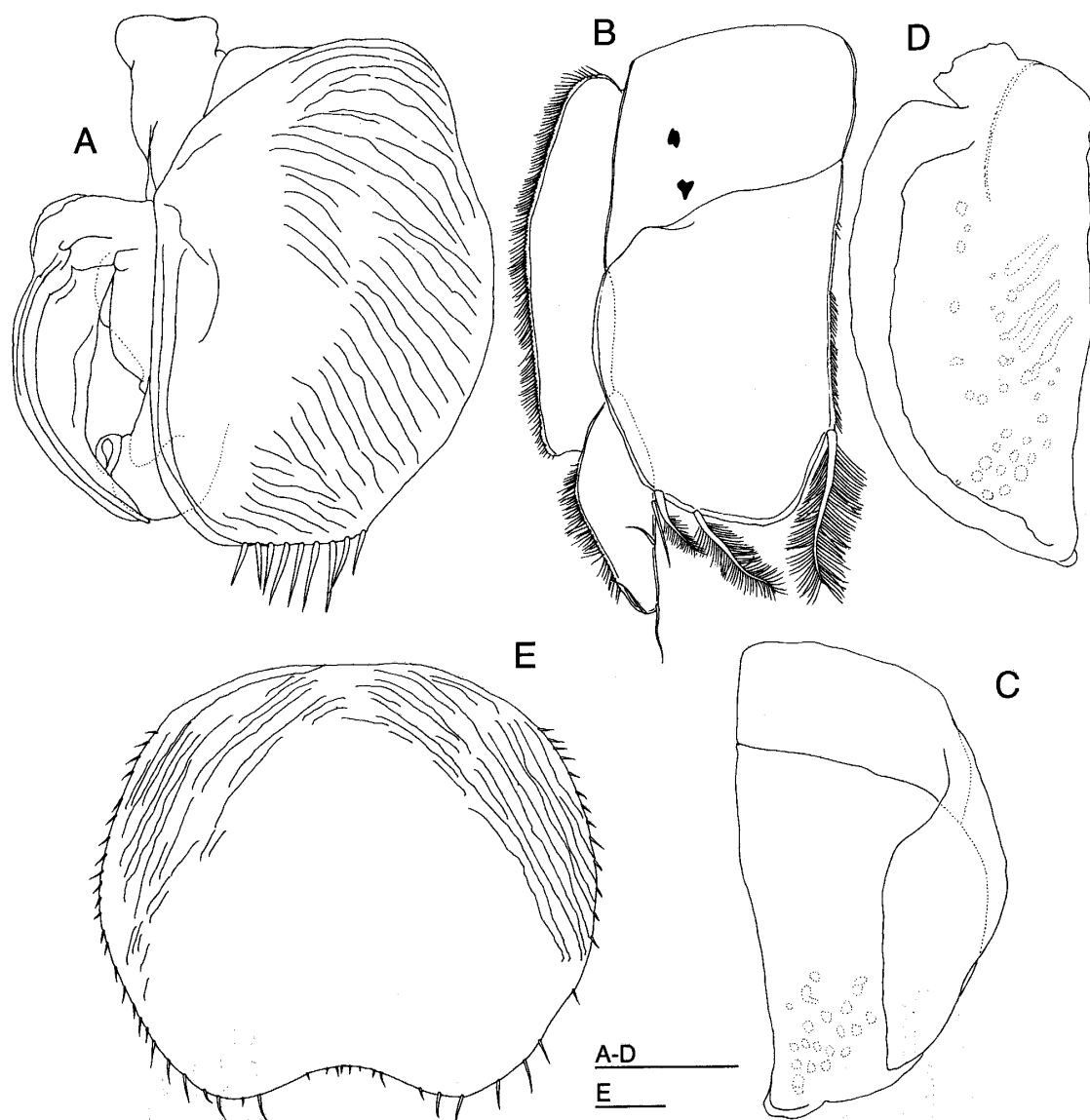


Fig. 6. *Janiralata sagamiensis* sp. nov. A–D, holotype male (NSMT-Cr S16); E, allotype female (KMNH IvR 700,116). A, left pleopod 2, ventral; B, left pleopod 3, dorsal; C, left pleopod 4, ventral; D, left pleopod 5, dorsal; E, operculum, ventral. Scales=100 μ m.

and with 4 simple setae dorsally; dactylus narrowest, with 2 simple setae and 2 curved ungues distally.

Pereopod 2 (Fig. 5E) shorter than pereopod 1: basis widest, with 1 simple seta and 2 broom setae dorsally, and 2 simple setae distally; ischium shorter than basis, with 5 dorsal robust setae and 3 short simple setae; merus subtriangulate, with 2 long robust simple setae distodorsally and 1 robust sensory seta dorsally, and with 4 simple setae ventrally; carpus shorter than basis, about 2.8 times as long as wide, with 1 robust sensory seta and 1 simple seta ventrally; propodus as long as carpus, narrower than carpus, with 5 simple setae and broom seta dorsally, and with 3 robust sensory setae and 2 simple setae ventrally; dactylus with 3 curved ungues apically.

Pleopod 1 (Fig. 5F) about 1.2 times as long as maximal width, denticulated proximally and

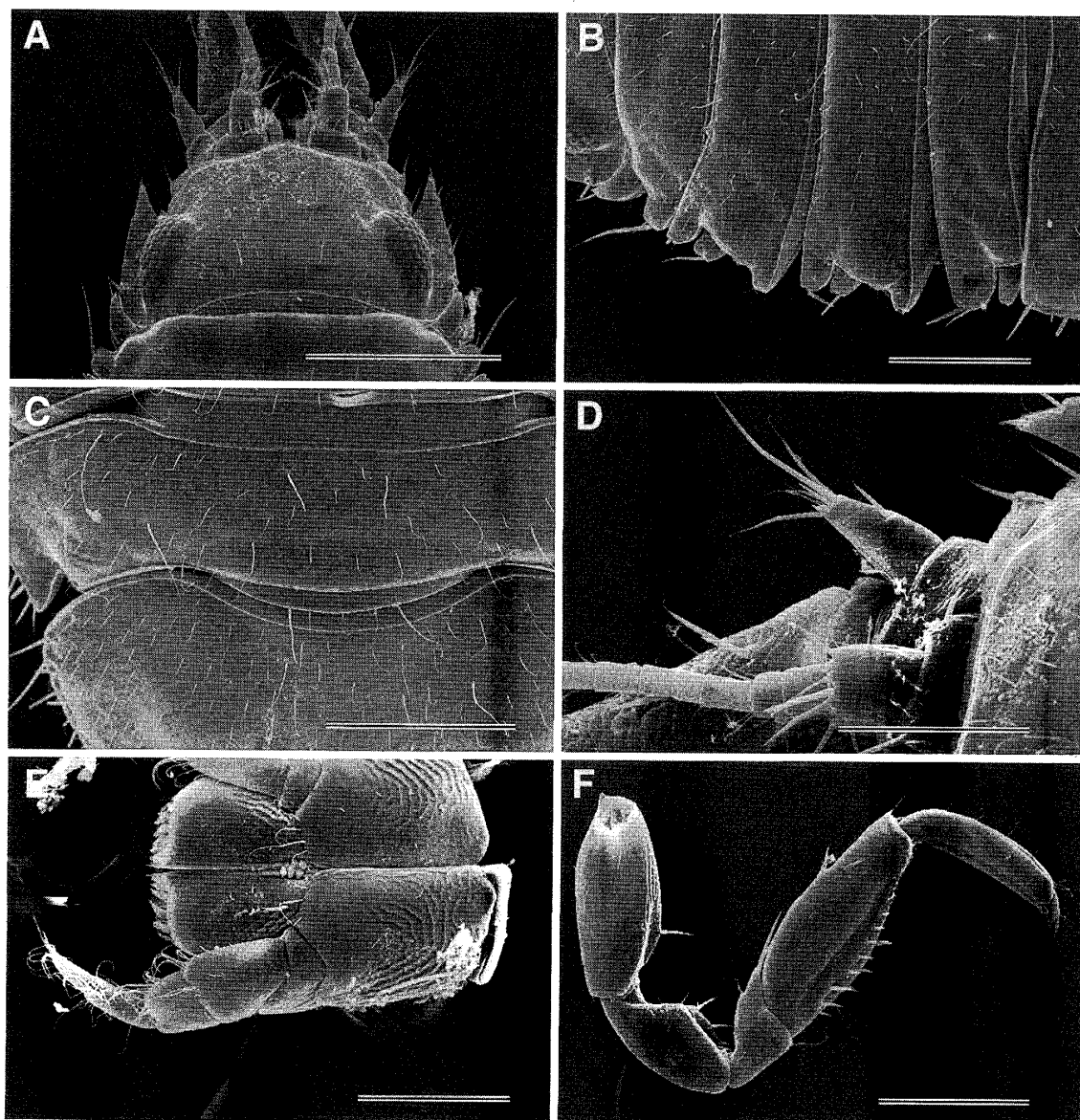


Fig. 7. *Janiralata sagamiensis* sp. nov., female (KMNH IvR 700,121). A, head and pereonite 1, dorsal; B, lateral part of pereonites 1–5, dorsal; C, pereonite 7 and pleon, dorsal; D, basal part of antennae, dorsal; E, maxillipeds, ventral; F, right pereopod 2, lateral. Scales=A, 600 μ m; B, C, F, 300 μ m; D, E, 180 μ m.

distolaterally, with 30 long simple setae distally and 14 short simple setae distolaterally. Pleopod 2 (Fig. 6A) with robust short appendix masculina: protopod about 1.5 times as long as wide, with 9 simple setae distally. Pleopod 3 (Fig. 6B): endopod about 2.1 times as long as maximal width; exopod slender, surpassing tip of endopod, with 3 plumose setae distally; article 1 of exopod about 2.3 times as long as article 1 of endopod; article 2 of exopod half longer than article 1 of exopod. Pleopod 4 (Fig. 6C): endopod broad, about twice as long as wide; exopod about half as broad as endopod. Pleopod 5 (Fig. 6D) semicircular, about 2.2 times as long as wide.

Uropod (Fig. 4A) moderately slender, with many long setae: endopod longer than exopod.

Description of allotypic female (KMNH IvR 700,116). Similar to female in pereonal appendages.

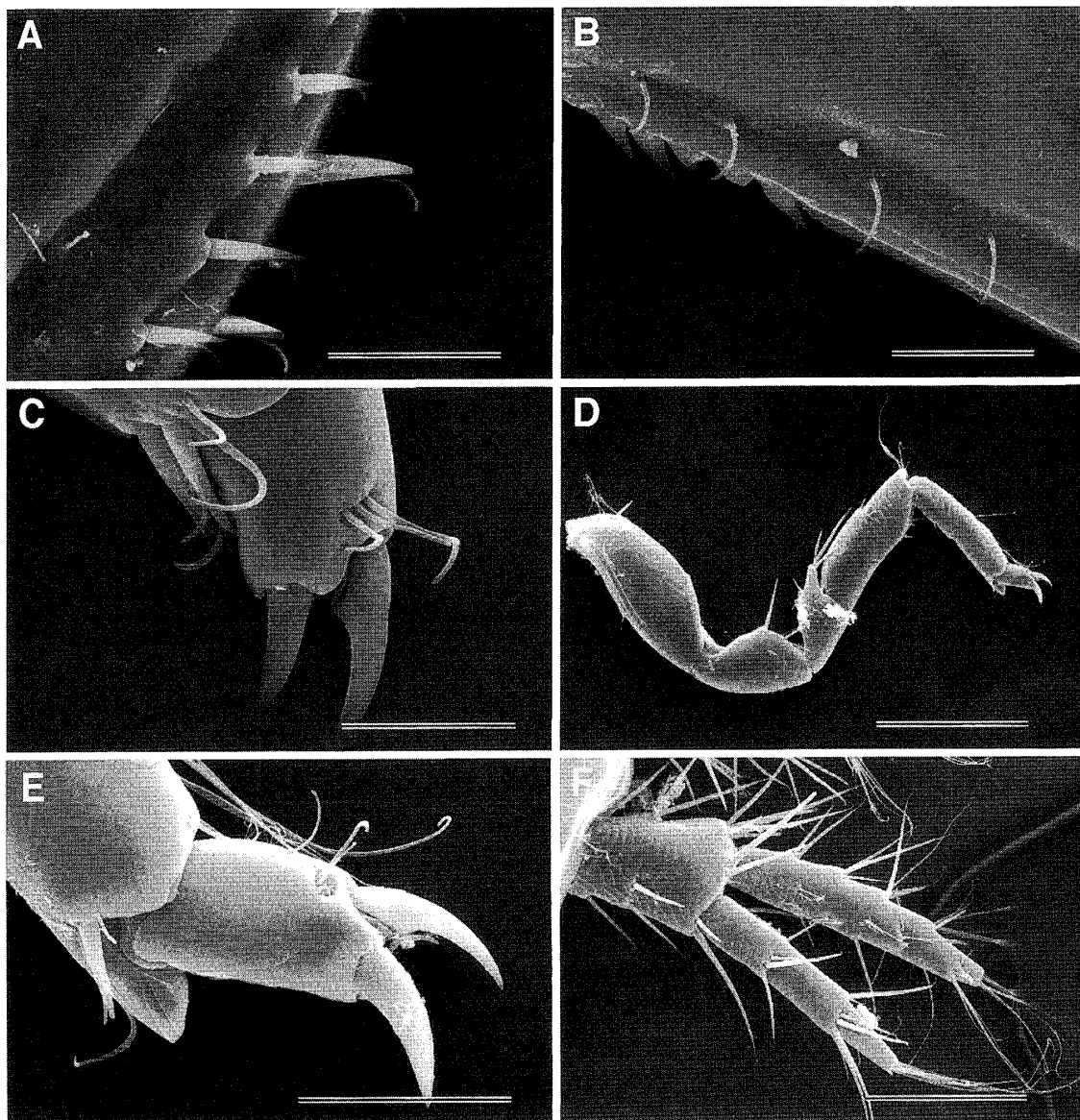


Fig. 8. *Janiralata sagamiensis* sp. nov., female (KMNH IvR 700,121). A, ventral margin of carpus of pereopod 1, lateral; B, ventral margin of propodus of pereopod 1, lateral; C, dactylus of pereopod 1, lateral; D, left pereopod 2, medial; E, dactylus of pereopod 2, medial; F, left uropod, dorsal. Scales=A, E, 60 μ m; B, C, 30 μ m; D, 300 μ m; F, 60 μ m.

Body (Fig. 4B) about 2.3 times as long as maximal width. Pereonites (Fig. 4B) with some simple setae laterally and dorsally: pereonite 1 as long as pereonite 2. Operculum (Fig. 6E) about 1.2 times as broad as long, marginally setose.

SEM observation of paratype female (KMNH IvR 700,121). Cephalon (Fig. 7A) covered with many fine setae dorsally: eye lobes well-developed, with many hexagonal ommatidia. Pereonites (Fig. 7A) with many fine setae on dorsum. Pleonite 1 (Fig. 7C) small, with pair of long seta and some fine setae dorsally. Basal articles of antennula (Fig. 7D) with many simple scales. Maxilliped (Fig. 7E) with simple scales proximoventrally. Pereopod 1 (Fig. 7F): carpus and propodus ventrally flattened; ventral margin of carpus setulated; ventral margin of propodus with row of short teeth proximally;

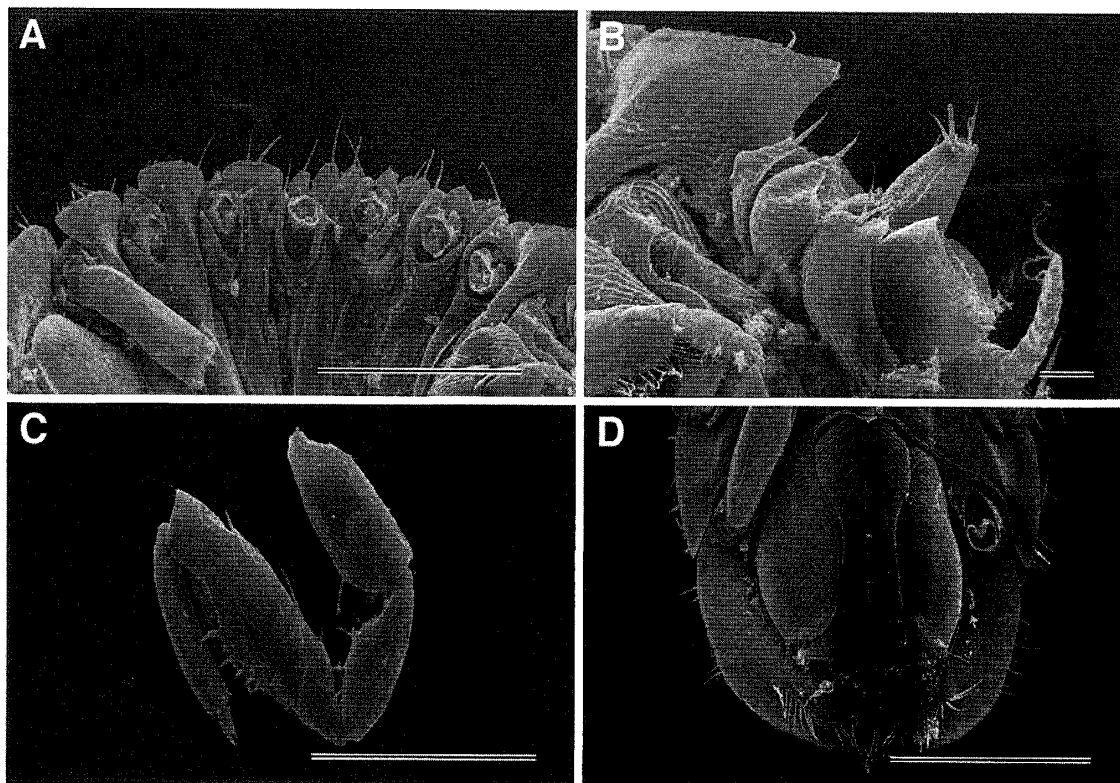


Fig. 9. *Janiralata sagamiensis* sp. nov., male (KMNH IvR 700,117). A, lateral part of pereon, dorsal; B, basal part of antenna 2, ventral; C, right pereopod 1 of pereopod 1, medial; D, pleotelson, ventral. Scales=A, C, D, 600 μ m; B, 180 μ m.

dactylus robust, with 3 simple setae and 2 curved unguis. Pereopod 2 (Fig. 8D): basis, carpus and propodus covered with simple scales; dactylus with 3 simple setae subdistally and 1 simple seta distally. Uropod (Fig. 8F): protopod with many simple scales dorsally; endopod and exopod with few simple scales.

SEM observation of paratype male (KMNH IvR 700,117). Coxal plates (Fig. 9A) well-developed laterally, separated from ventral plates of pereonites. Antenna (Fig. 9B): article 1 shorter than article 2, as broad as article 2, with simple seta distolaterally. Pereopod 1 (Fig. 9C) covered with many simple scales. Pleotelson (Fig. 9D) with many long simple setae distoventrally.

Remarks. The present new species is assigned to *Janiralata*, having a set of the following characters: lateral margins of pereonites 2–3 divided into 2 lobes by a deep cleft; coxal plates visible on dorsal view; pereonite 1 with coxal plate dorsally visible in anterolateral border; pleonite 1 very short; pleotelson broad, near width of pereonite 7; antennal article 1 longer than wide; article 3 of antenna with conspicuous scale; mandibular molar process truncate; article 3 of mandibular palp elongate, curved and setose; maxillipedal endite longer than wide; palp articles 4–5 of maxilliped narrow, straight-sided, distinctly narrower than broad articles 1–3; palp article 3 of maxilliped distally broad, setose, not tapering, near width of article 2; pereopod 1 carposubchelate, with two unguis; male pleopod 1 distal tip laterally expanded, with projecting subtriangular lateral lobes; male pleopod 2 distal tip of protopod blunt, setiferous; female operculum broad, ovate, distally with median concavity; pleopod 3 endopod with 3 plumose setae having distinct gap between medial seta and 2 lateral setae; uropods biramous.

Janiralata sagamiensis sp. nov. is similar to *J. koreaensis* Jang, 1991, known from Korea, in having the reduced rostrum and the distally rounded pleotelson without concavities (Jang, 1991). The two species, however, differ from one another in the following characters (those of *J. koreaensis* in parentheses): the lateral lappets of cephalon is frontally well-projected, with acute apex (short, with blunt apex); the pleotelson is short (moderately long); the propodus of pereopods are robust (moderately narrow); the lateral horns of male pleopod 1 are broad (narrow); tips of the lateral horns of male pleopod 1 are curved to upward slightly (nearly horizontal); the stylet of appendix masculina is short, not surpassing the tip of the protopod (moderately long, surpassing the tip of the protopod); the second article of endopod of the pleopod 3 has 3 plumose setae distally (5 plumose setae).

Genus *Ianiropsis* G. O. Sars, 1897

Ianiropsis tridens Menzies, 1952

(Figs. 10–11)

Ianiropsis tridens Menzies, 1952: pp. 156–158, fig. 71; 1962, p. 78, fig. 24; Wolff, 1962, p. 251; George & Strömberg, 1968, p. 237; Schultz, 1969, fig. 262, figs. 412–413; Kussakin, 1988, pp. 103–104, fig. 83; Jang & Kwon, 1990, pp. 200–202, figs. 2A, 6; Wilson & Wägele, 1994, p. 702.

Material examined. 2 non-ovig. ♀, 2.05 mm (KMNH IvR 700,123), 1.73 mm (NSMT-Cr S752), 1 ovig. ♀, 1.61 mm (KMNH IvR 700,124), 35°9.976'N, 139°8.969'E, 20 m depth, sponge, SCUBA, off Iwa, Manazuru-cho, Kanagawa Prefecture, Japan, 24 August 2004.

Diagnosis. Body (Fig. 10A) about 3 times as long as wide, without long setae: color of pigments dark brown. Cephalon (Figs. 10A; 11A) without conspicuous frontal projection. Pereonites 1–3 (Figs. 10A; 11B) not separated laterally by notches from following ones; anterolateral corners of pereonite 2 rounded. Pleotelson (Figs. 10A, B; 11C) without concavities on distal margin: each lateral margin with 3 or 4 teeth. Uropods (Fig. 10A) exceeding 3/4 length of pleotelson. Antennula (Figs. 10A, C; 11D): flagellum dilated; tip of antennula approaching to distal end of peduncular article 5 of antenna. Antenna (Fig. 10A): articles 5 and 6 about half length of cephalon width. Maxillipedal palp (Fig. 11E): total length of articles 1–3 about 1.7 times as long as that of articles 4–5. Operculum (Fig. 10D) distally concave, with some simple setae.

Description of reference female (KMNH IvR 700,123). Cephalon (Fig. 10A) about 1.8 times as broad as length, about 1.7 times as long as pereonite 1: posterior margin nearly straight; eye lobes large, with many ommatidia. Pereonites 1–7 (Fig. 10A) laterally rounded, with some short setae. Pleotelson (Fig. 10A, B) broad, as long as width, with some lateral simple and dorsal fine setae.

Antennula (Fig. 10A, C): article 1 robust, about 1.2 times as long as broad, with 2 simple setae distolaterally; article 2 about half as long as article 1, about half as broad as article 1, with 1 simple seta and 2 broom setae laterally and 3 simple setae distomedially; article 3 shorter than article 2, with simple seta distomedially; article 4 about half as long as article 3, with simple seta distolaterally; article 5 as long as article 3; articles 6–9 each with some simple setae and aesthetasc; terminal article shortest, with long simple and short simple setae and aesthetasc.

Operculum (Fig. 10D) broad, about 1.1 times as long as broad.

SEM observation of reference female (KMNH IvR 700,124). Cephalon (Fig. 11A) covered with cuticular scales dorsally, without dorsal setae. Pereonites 1–2 and cephalon (Fig. 11B) tightly combined. Lateral margin of pleotelson (Fig. 11C): simple setae arising from base of lateral teeth. Antenna (Fig. 11A, D): anterior half visible in dorsal view. Maxilliped (Fig. 11E): article 2 broadest

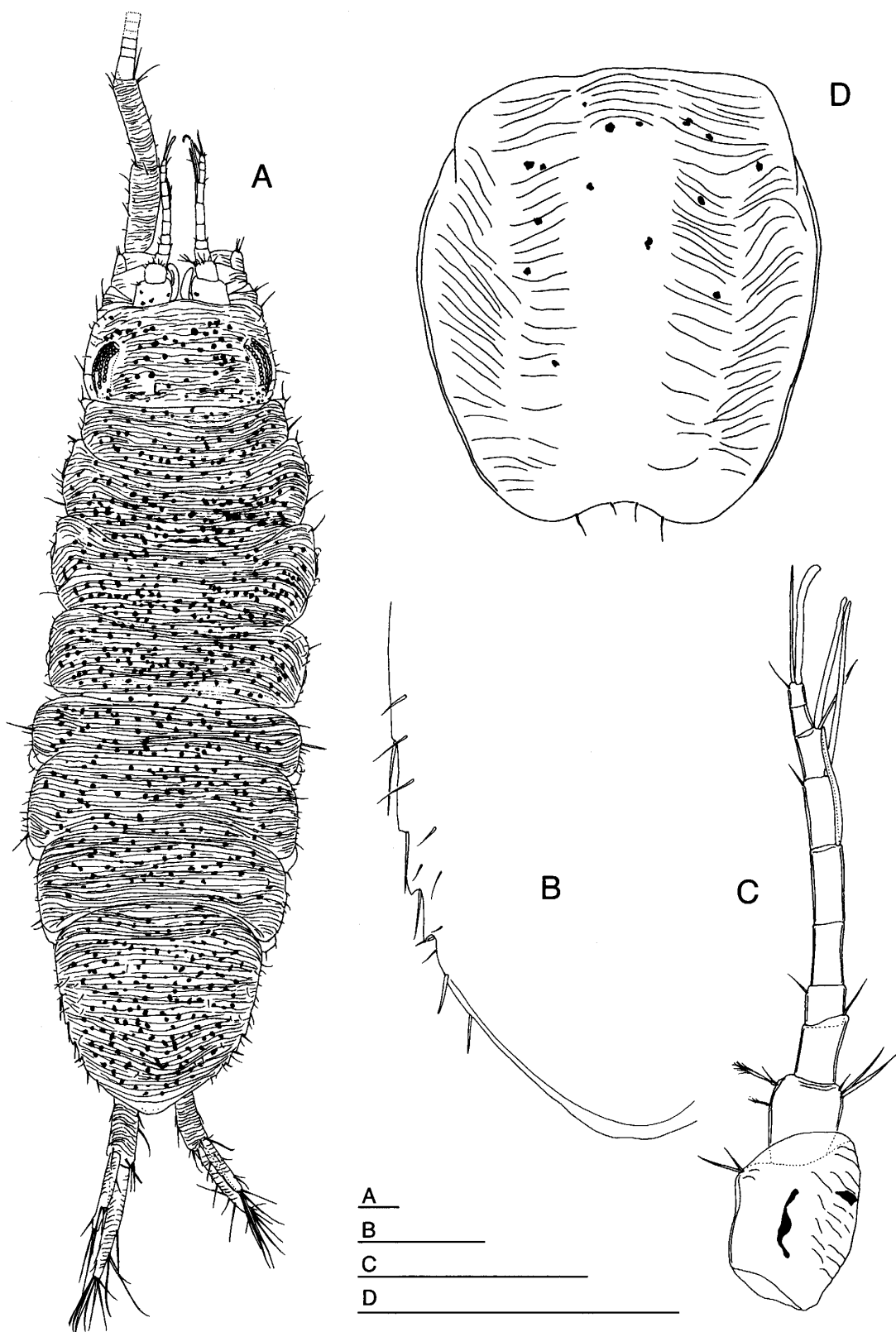


Fig. 10. *Ianiropsis tridens* Menzies, 1952, non-ovig. female (KMNH IvR 700,123). A, habitus, dorsal; B, lateral margin of pleotelson, dorsal; C, right antenna 1, ventral; D, operculum, ventral. Scales=100 μ m.

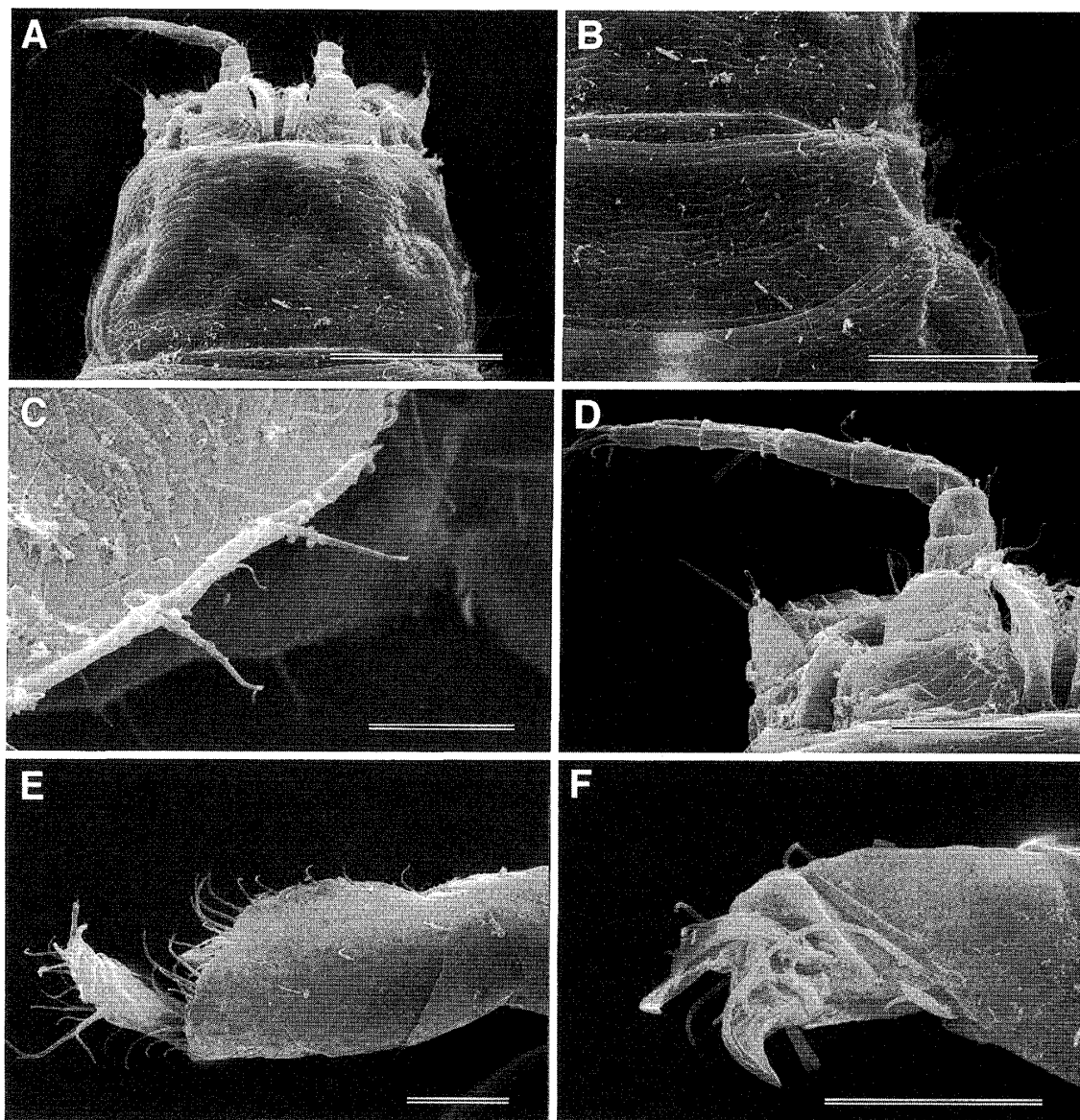


Fig. 11. *Ianiropsis tridens* Menzies, 1952, ovig. female (KMNH IvR 700,124). A, head, dorsal; B, lateral part of head and pereonites 1, 2, dorsal; C, lateral margin of pleotelson, dorsal; D, basal part of antennae, dorsal; E, right maxilliped, ventral; F, dactylus of pereopod 1, lateral. Scales=A, 180 μ m; B, 120 μ m; C, F, 30 μ m; D, E, 60 μ m.

and longest; article 3 broader than long, about half as long as article 2. Pereopod 7 (Fig. 11F): dactylus with 3 flattened unguis.

Remarks. Characters from which the present specimens were identified with *Ianiropsis tridens* Menzies, 1952 from northern California (type locality), Chile (Menzies, 1962), San Juan Island (George & Strömberg, 1968) and Korea (Jang & Kwon, 1990) were as follows: the body is about 3 times as long as wide, without long setae; the pereonites 1–3 are not separated laterally by notches from following ones; the anterolateral corners of the pereonite 2 are rounded; the pleotelson is without concavities on distal margin; each lateral margin of the pleotelson has 3 or 4 teeth; the uropods exceed 3/4 length of the pleotelson; the flagellum of antennula is dilated; tip of the antennula

approaches to distal end of the peduncular article 5 of antenna; articles 5 and 6 of the antenna are about half length of the cephalon width; total length of articles 1–3 of the maxillipedal palp is about 1.7 times as long as that of articles 4–5; the operculum is distally concave, with some simple setae.

Ianiropsis serricaudis Gurjanova, 1936 from the North Pacific has 3–4 lateral teeth on pleotelson (Gurjanova, 1936; Jang & Kwon, 1990), similar to those of *I. tridens*. *I. tridens* is distinguished from *I. serricaudis* by the following characters (those of *I. serricaudis* in parentheses): the article 6 of antenna is shorter than cephalon width (longer); the head and pereonites 1 and 2 do not have lateral notches (having moderately deep notches); the flagellum of antenna is dilated (moderately narrow); the maxillipedal palp is moderately short (very long).

Genus *Microjaera* Bocquet & Lévi, 1955

Microjaera morii Shimomura, 2005

(Fig. 12)

Microjaera morii Shimomura, 2005: pp. 115–120, figs. 1–4.

Material examined. ♂, 1.07 mm (NSMT-Cr S753), St. 4, 35°8.245'N, 139°10.215'E, 51.6–53 m depth, dredge, R/V *Tachibana*, off Manazuru-cho, Kanagawa Prefecture, Japan, 23 August 2004.

Diganosis. Body (Fig. 12A) slender, about 6 times as long as maximal width. Cephalon (Fig. 12A) frontal margin broadly projected. Pereonite 1 shorter than pereonites 2–7; posterior margin of pereonite 7 nearly straight. Pleonite 1 short, dorsally invisible. Pleotelson (Fig. 12A) ovate, about 1.4 times as long as broad; posterior margin rounded. Protopod of uropod more than 2/3 hidden in dorsal view on pleotelson; exopod about half as broad as endopod. Male pleopod 1 (Fig. 12C) truncate, with 14 simple setae ventrally; posterior margin nearly straight, without setae. Male pleopod 2 (Fig. 12D): protopod ovate, about 2.1 times as long as width, without setae; appendix masculina robust and long, strongly winded.

Description of reference male (NSMT-Cr S753). Cephalon (Fig. 12A) about 1.2 times as long as wide, about 4 times as long as pereopod 1: posterior margin convex. Pleotelson about 1.3 times as long as broad, with 2 pairs of long simple setae laterally and some short setae laterally.

Pereopod 1 (Fig. 12B): basis bulbous, about twice as long as broad, with robust simple seta distoventrally; ischium trapezoidal, about 3/5 times as long as basis, with fine simple seta ventrally; merus trapezoidal, shorter than ischium, with 2 simple setae distodorsally and 1 robust sensory seta and 1 simple seta distoventrally; carpus robust, as long as basis, about 2.4 times as long as broad, with 2 robust sensory setae and 4 simple setae and denticulate fringe ventrally; propodus about 4/5 times as long as carpus, with 2 robust sensory setae and 5 simple setae ventrally and simple seta distodorsally; dactylus narrowest, with 7 simple setae and 2 curved ungues distally.

Pleopod 1 (Fig. 12C) about 1.3 times as long as maximal width: tip of lateral horn rounded. Pleopod 2 (Fig. 12D): protopod without setae.

Uropod (Fig. 12E): protopod with simple seta distomedially and distolaterally; endopod with 2 simple setae apically; exopod with 5 simple setae and 4 broom setae distally.

Remarks. This species has been recorded from an intertidal zone of Nagasaki Prefecture (Shimomura, 2005). Characters from which the present specimen was identified with *M. morii* were as follows: body is slender, about 6 times as long as maximal width; the frontal margin of cephalon is broadly projected; the pereonite 1 is shorter than pereonites 2–7; the posterior margin of pereonite 7 nearly straight; the pleonite 1 is dorsally invisible; the pleotelson is ovate; the posterior margin of

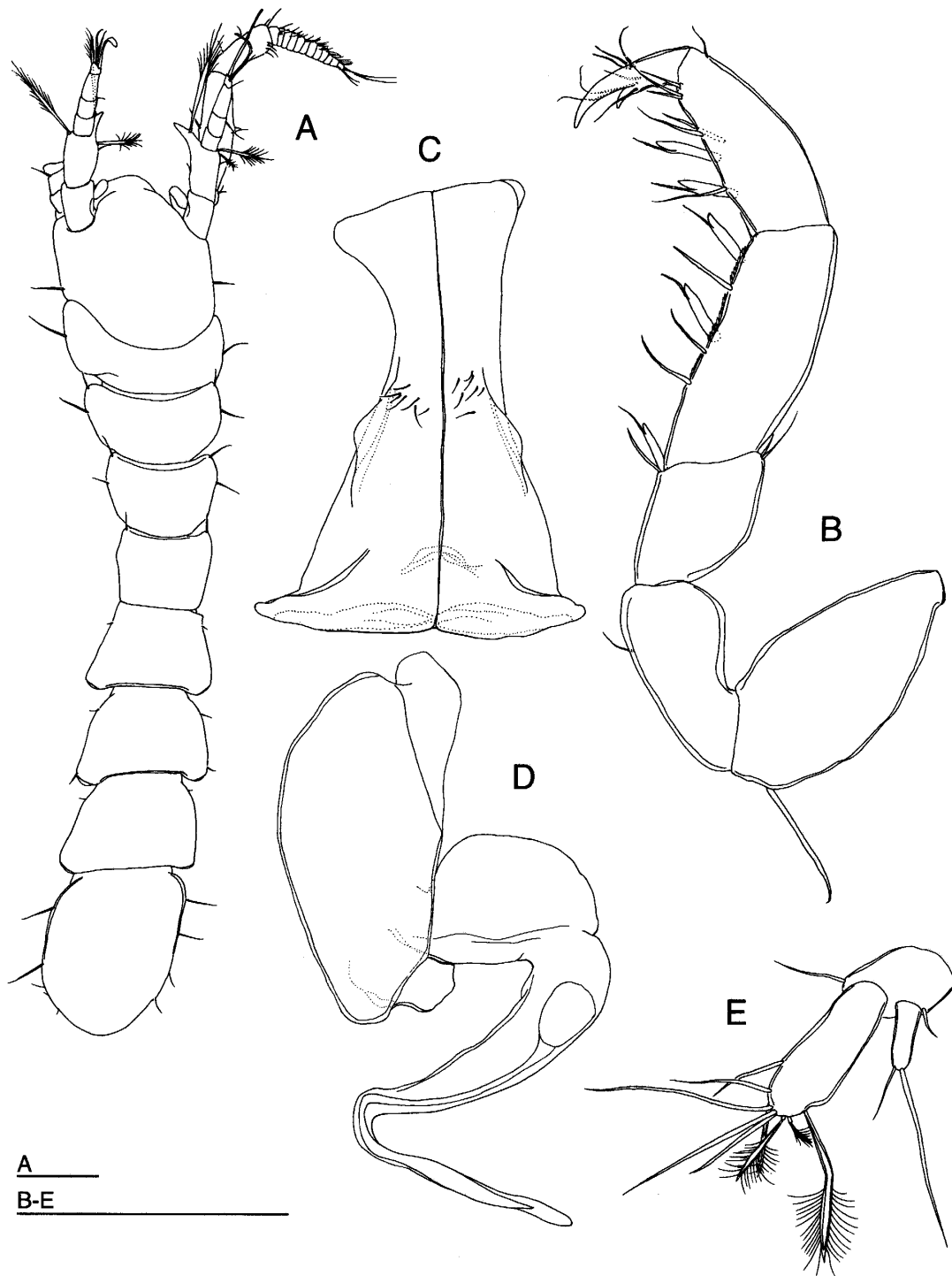


Fig. 12. *Microjaera morii* Shimomura, 2005, male (NSMT-Cr S753). A, habitus, dorsal; B, left pereopod 1, medial; C, pleopod 1, ventral; D, right pleopod 2, ventral; E, left uropod, ventral. Scales=100 μ m.

pleotelson is rounded. The male specimen of *M. morii* was described for the first time. The male of the species differs from that of another *Microjaera* species, *M. anisopoda* Bocquet & Lévi, 1955 described from the Mediterranean (Bocquet & Lévi, 1955) in the following characters (those of *M. anisopoda* in parentheses): the distal margin of pleopod 1 does not have any setae (many long setae); the appendix masculina of pleopod 2 is strongly winded medially (curved laterally).

Family Paramunnidae Vanhoeffen, 1914

Genus *Munnogonium* George & Strömberg, 1968

Munnogonium orientale Shimomura & Mawatari, 2000

Munnogonium orientale Shimomura & Mawatari, 2000: pp. 221–226, figs. 4–6.

Material examined. Non-ovig. ♀, 1.01 mm (NSMT-Cr S754), St. 2, 35°8.373'N, 139°10.371'E, 52–55.8 m depth, dredge, R/V *Tachibana*, off Manazuru-cho, Kanagawa Prefecture, Japan, 23 August 2004.

Remarks. This species has been recorded from 10 m deep of the Shirahama coast, Wakayama Prefecture, Japan (Shimomura & Mawatari, 2000). The bathymetric distributional range was extended down to 55.8 m.

Genus *Heterosignum* Gamô, 1976

Heterosignum otsuchiensis Shimomura & Mawatari, 2002

Heterosignum otsuchiensis Shimomura & Mawatari, 2002b: pp. 2118–2121, figs. 10–11.

Material examined. Ovig. ♀, 1.68 mm (NSMT-Cr S755), St. 1, 35°8.4'N, 139°10.69'E, 67–68 m depth, dredge, R/V *Tachibana*, off Manazuru-cho, Kanagawa Prefecture, Japan, 23 August 2004.

Remarks. The present specimen is identified as this species on the lateral spine-like processes and the short mid-dorsal spines on pereonites 1–7. This species was originally described from Otsuchi Bay, Iwate Prefecture (Shimomura & Mawatari, 2002b). The present record represents range extension for this species westward to Sagami Bay.

Family Munnidae G. O. Sars, 1899

Genus *Munna* Krøyer, 1839

Munna japonica Shimomura & Mawatari, 2002

Munna japonica Shimomura & Mawatari, 2002a, pp. 52–55, figs. 3–4.

Material examined. 2 non-ovig. ♀, 0.75 mm (NSMT-Cr S756), 0.73 mm (KMNH IvR 700,125), 35°9.669'N, 139°8.889'E, 15 m depth, sponge, SCUBA, off Iwa, Manadzuru-cho, Kanagawa Prefecture, Japan, 24 August 2004.

Remarks. This species shows wide geographic distribution in the coast of Hokkaido to Kochi Prefecture, Japan (Shimomura & Mawatari, 2002a). The species was characterized by the large pyriform pleotelson and the distolaterally projected male pleopod 1.

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要 約

相模湾沿岸よりミズムシ亜目等脚類（甲殻綱：フクロエビ上目）を7種得たので報告する。このうち *Janiralata sagamiensis* を新種として報告した。本種は頭部額角の突出が弱い点、腹尾節末端が丸く凹部を持たない点、頭部に前方へよく突出した側葉を持つ点、胸節の前節が太い点、雄第1腹肢の拡張部がわずかに上方へ湾曲する点、雄第2腹肢の交尾針が短い点等によって他種と区別できる。*Janiralata chuni* (Thielemann) は今回得られた標本に基づいて再記載を行った。また、*Ianiropsis tridens* Menzies を日本沿岸から初めて報告した。

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